

**Montana Board of Oil and Gas Conservation
Environmental Assessment**

Operator: Continental Resources, Inc.

Well Name/Number: Rena 1-11H

Location: SE SW Section 11 T27N R53E

County: Richland, **MT;** **Field (or Wildcat)** W/C (Bakken Horizontal)

Air Quality

(possible concerns)

Long drilling time: No, 30 to 40 days drilling time.

Unusually deep drilling (high horsepower rig): No, triple derrick drilling rig to drill a single lateral Bakken Formation horizontal well, 19,154'MD/8850'TVD.

Possible H2S gas production: Slight chance of H2S.

In/near Class I air quality area: No Class I air quality area.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211

Mitigation:

☒ Air quality permit (AQB review)

☐ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: No special concerns – using triple derrick rig to drill to 19,154'MD/8850'TVD, a single lateral horizontal in the Bakken Formation.

Water Quality

(possible concerns)

Salt/oil based mud: Yes, freshwater and freshwater mud system on the surface hole, oil based invert mud system on mainhole and saltwater for the horizontal hole.

High water table: No high water table anticipated at this location.

Surface drainage leads to live water: No, closest drainages are unnamed ephemeral tributary drainages to Charley Creek and then into the Missouri River, about 1/16 of a mile to the northeast and about ¼ of a mile to the north from this location. These drainages drain to a reservoir about 5/8 of a mile to the north from this location and then into Charley Creek, about 1.125 miles to the northwest and then into the Missouri River, about 1.5 miles to the northwest from this location.

Water well contamination: No, closest water wells are all 1 mile and further in any direction from this location. Recommend surface casing will be drilled with freshwater, steel casing will be set and cement to surface from 1002'.

Porous/permeable soils: No, sandy clay soils.

Class I stream drainage: No Class I stream drainage in the area of review.

Mitigation:

☒ Lined reserve pit

☒ Adequate surface casing

☐ Berms/dykes, re-routed drainage

☐ Closed mud system

☐ Off-site disposal of solids/liquids (in approved facility)

☐ Other: _____

Comments: 1002' of surface casing cemented to surface adequate to protect freshwater zones.

Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: No, stream crossing.

High erosion potential: No, moderate cut, up to 11.3' and SMALL fill, up to 8.0' required.

Loss of soil productivity: No, location will be restored after drilling, if nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: No, 500'X270' large location size required.

Damage to improvements: No, surface use is grassland.

Conflict with existing land use/values: Slight

Mitigation

☐ Avoid improvements (topographic tolerance)

☐ Exception location requested

☒ Stockpile topsoil

☐ Stream Crossing Permit (other agency review)

☒ Reclaim unused part of wellsite if productive

☐ Special construction methods to enhance reclamation

☐ Other _____

Comments: Will use existing county road, #148 and existing unnamed well access road. About 5656' of new access road will be built into this location, off existing county road. Drill cutting will be disposed of in the lined reserve pit. Oil based drilling fluids will be recycled. Reserve pit fluids will be recycled and/or haul to a commercial Class II disposal. Lined reserve pit will be backfilled when dry. No special concerns

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Closest residences, none within 1 mile in any direction from this location.

Possibility of H₂S: Slight chance of H₂S.

Size of rig/length of drilling time: Triple drilling rig/short 30 to 40 days drilling time.

Mitigation:

☒ Proper BOP equipment

☐ Topographic sound barriers

☐ H₂S contingency and/or evacuation plan

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: Operational BOP and adequate surface casing will mitigate any problems that may occur. No concerns.

Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): None identified.

Proximity to recreation sites: None identified.

Creation of new access to wildlife habitat: No

Conflict with game range/refuge management: None in the area.

Threatened or endangered Species: Species identified as threatened by the USFWS are Pallid Sturgeon, Interior Lease Tern, Piping Plover and Whooping Crane. Species listed as candidate species are the Greater Sage Grouse and Sprague's Pipit. NH tracker website for this Township and Range lists only one (1) species of concern as the Piping Plover.

Mitigation:

- ☐ Avoidance (topographic tolerance/exception)
- ☐ Other agency review (DFWP, federal agencies, DSL)
- ☐ Screening/fencing of pits, drillsite
- ☐ Other: _____

Comments: Private grass surface lands. There maybe species of concern that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to what he would like done, if a species of concern is discovered at this location. The Board of Oil & Gas has no jurisdiction over private surface lands.

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites None identified.

Mitigation

- ☐ avoidance (topographic tolerance, location exception)
- ☐ other agency review (SHPO, DSL, federal agencies)
- ☐ Other: _____

Comments: On private grass surface lands. There maybe possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desires to preserve these sites or not, if they are found during construction of the wellsite. The Board of Oil & Gas has no jurisdiction over private surface lands.

Social/Economic

(possible concerns)

- ☐ Substantial effect on tax base
- ☐ Create demand for new governmental services
- ☐ Population increase or relocation

Comments: No concerns

Remarks or Special Concerns for this site

Well is a single lateral Bakken Formation horizontal well, 19,154'MD/8850'TVD.

Summary: Evaluation of Impacts and Cumulative effects

No long term impact expected, some short term impacts will occur.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the

human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki
(title:) Chief Field Inspector
Date: November 30, 2011

Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC website

(Name and Agency)
Richland County water wells
(subject discussed)
November 30, 2011
(date)

US Fish and Wildlife, Region 6 website
(Name and Agency)
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES
MONTANA COUNTIES, Richland County
(subject discussed)

November 30, 2011
(date)

Montana Natural Heritage Program Website (FWP)
(Name and Agency)
Heritage State Rank= S1, S2, S3, T27N R53E
(subject discussed)

November 30, 2011
(date)

If location was inspected before permit approval:

Inspection date: _____

Inspector: _____

Others present during inspection: _____